

Endobronchial tuberculosis mimicking malignancy

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ABSTRACT

Endobronchial tuberculosis has a very varied presentation. Diagnosis is often very challenging as typical radiological features are absent and sputum smear for acid-fast bacilli is often negative. However, detection is essential as it may lead to long-term sequelae such as bronchial stenosis. Bronchoscopy is a very useful investigation in such cases. Our case is a rare manifestation of endobronchial tuberculosis as it mimicked malignancy.

KEY WORDS: Bronchoscopy in TB, endobronchial TB, tuberculosis

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INTRODUCTION

Endobronchial tuberculosis is defined as a specific inflammation of the tracheobronchial tree caused by the tubercle bacillus.^[1] It poses a diagnostic challenge as it may mimic other conditions such as malignancy. In this case there was a complete collapse with endobronchial obstruction of the right upper lobe which along with the presence of multiple nodules on CT gave a high index of suspicion for malignancy. This presentation is rare and bronchoscopy with biopsy helped us reach a diagnosis.

CASE REPORT

Introduction

A 45-year-old woman was referred for fitness for hysterectomy for dysfunctional uterine bleeding on account of X-ray findings.

Presenting history

Patient had dry cough and dull aching right-sided chest pain since 2 months. She had weight loss of 5 kgs. She did not complain of fever, hemoptysis, or dyspnea. She had no past major medical or surgical illness. She had

no past history of tuberculosis (TB). Her father had received complete treatment for pulmonary TB with category 1 AKT, 2 yrs back. Her chest X-ray showed a right Upper lobe inhomogeneous opacity with an air-bronchogram [Figure 1].

She had anemia on general examination and on examination of respiratory system, a dull note was present on percussion over the right infra-clavicular, apical and inter-scapular region, on auscultation bronchial breath sounds were present in right infra-clavicular area and the apex. Examination of the other systems revealed no abnormalities.

Sputum for acid-fast bacilli and Gram stain were negative. CBC revealed iron deficiency anemia with thrombocytosis. Biochemical parameters were normal. The patient was advised a high-resolution CT of the chest with contrast.

The CT was reported as:

- Area of collapse consolidation seen in the apical segment of right upper lobe associated with ipsilateral pulled hila and mediastinal structures
- The collapse lung shows heterogeneous enhancement in the periphery
- There are enlarged upper and lower right paratracheal, pretracheal, precarinal lymph nodes. Right bronchopulmonary hilar lymph nodes are enlarged
- There are variable size bilateral pulmonary nodules scattered predominantly in the sub-pleural region.

An impression of a possibility of a neoplastic etiology with primary and secondaries in lung was given by the radiologists [Figure 2a and b].

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Due to the presence of DUB and to rule out a primary pelvic malignancy, the patient was advised USG abdomen + pelvis along with Pap smear and CA-125.

- The USG showed a bulky uterus and no uterine or ovarian mass
- Ca-125 was marginally raised- 36.6, with normal being 0-35
- Pap smear was indicative of inflammatory tissue.

Bronchoscopy revealed that the right upper lobe bronchus opening was not visible. A white friable lesion was noted at the expected opening site which was soft in consistency. Erythema was seen around the lesion. The lesion was biopsied and sent for histopathology. The washings were sent for AFB smear, AFB culture by MGIT, fungal and bacterial and cytology [Figure 3a and b].

Results of bronchoscopic sample studies were as follows

Investigations	Results
Bronchial wash MGIT smear	Negative
Gram stain, KOH mount	No organism
Cytology	No evidence of malignancy
Post-scopy sputum	AFB 1+
Histopathology	Metaplastic ulcerated squamous epithelium with abundant suppurative granulation tissue with epithelioid granulomas and giant cells

MGIT: Mycobaterium growth indicator tube, KOH: For fungal culture, AFB: Acid fast bacilli

The 6-week MGIT culture of the bronchial wash resulted positive for AFB. The patient was started on Category 1 AKT along with steroids (1 mg/kg/day) tapered over 6 weeks. After a month, a repeat Chest X-ray showed a decrease in the size of the lesion, which showed further significant resolution on follow-up X-rays, along with clinical improvement [Figure 4a and b].

DISCUSSION

Endobronchial tuberculosis is defined as a specific inflammation of the tracheobronchial tree caused by the tubercle bacillus.^[1] It poses a diagnostic challenge because the disease presents with non-specific clinical findings, which can be variable, depend on the site and it may have an insidious onset, simulating lung carcinoma, or an acute onset mimicking asthma, foreign body aspiration or pneumonia. Our patient did not have respiratory complaints typical of tuberculosis and she had radiological findings, which mimicked malignancy.

The radiological findings of bronchogenic spread of tuberculosis are multiple nodular opacities and consolidation. Classical features of tuberculosis such as cavitations, hilar and mediastinal lymphadenopathy and pleural effusion, may also be observed.



Figure 1: Chest X-ray showing Right UL consolidation with air-bronchogram

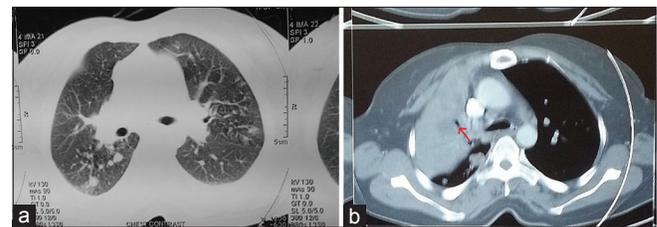


Figure 2: (a) CT showing 4-8-mm nodules suggestive of endobronchial spread in right UL (b) CT showing collapse of right UL with endobronchial obstruction. Bronchial cut-off sign noted in right UL

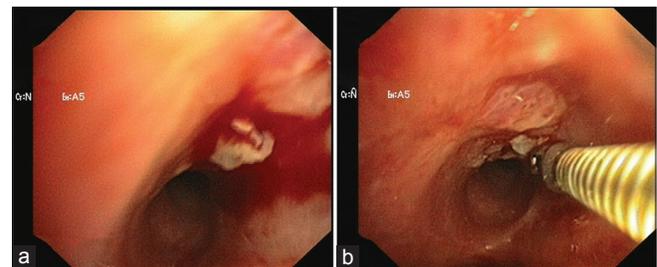


Figure 3: (a) Bronchoscopy showing complete occlusion of right UL opening with whitish tumor like granulation tissue (b) Bronchoscopy showing complete occlusion of right UL opening with whitish tumor like granulation tissue

The most common findings on HRCT are:^[1,2]

- 2-4 mm centrilobular nodules and branching linear structures known as the “tree-in-bud” appearance, which represents cessation necrosis within and around the bronchioles
- Other abnormalities observed in decreasing order of frequency are 4-8-mm diameter nodules with poorly defined margins as noted in our patient
- Lobular areas of consolidation and thickening of the interlobular septa^[1]
- Upto 25-30% of patients may have evidence of collapse^[2]

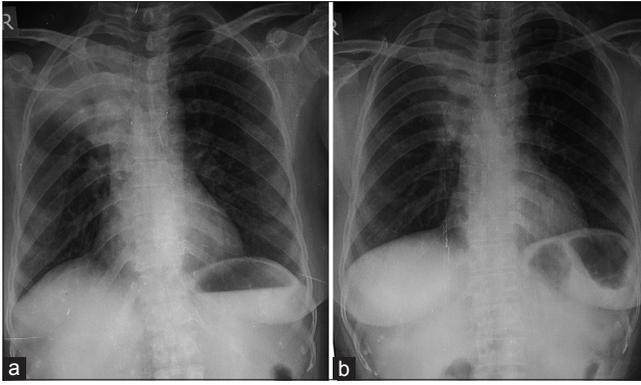


Figure 4: (a) Cxr after 1 month of treatment (b) Cxr after 5 months of treatment

- Later stages, bronchial stenosis, bronchial wall thickening, distal collapse, mucoid impaction may be noted.

In our patient the absence of classical ‘tree in bud’ opacities and cavitations along with presence of bronchus cut-off sign had made it mandatory to rule out malignancy; however, our patient did have the less commonly noted ‘4-8-mm nodules’ around the consolidation.

The yield from sputum smear is as low as 50%, this being attributable to the proximal obstruction by the granulation tissue.^[3] The yield for post-bronchoscopy sputum is higher, as seen in our case. Bronchoscopic findings consist of erythema, mucosal granularity including discrete submucosal tubercles and shallow mucosal ulcers. White, gelatinous granulation tissue may also be present,^[1,2] as seen in our patient.

The pattern of endobronchial tuberculosis noted in our patient was endobronchial obstruction and tumour like growth, as per the Chung and Lee’s classification system for EBTB.^[3]

Bronchoscopic biopsy is the most reliable method for the diagnosis of EBTB. Bronchial biopsy produces more than 90% yield on smear as well as on culture.^[2] Histopathological

findings of mucosal ulceration and granulation tissue with epithelioid and giant cells were present in our case, confirming the tuberculous etiology. Bronchial wash culture also grew *Mycobacterium tuberculosis*.

The treatment of EBTB remains the standard anti-Koch’s chemotherapy. Steroids have also been used in the treatment of EBTB and are more likely to be useful in the earlier stages of EBTB when hypersensitivity is the predominant mechanism. The dose of corticosteroids is 40-60 mg daily for 4-6 weeks, tapered gradually over the next few weeks. Steroids reduces the bronchial narrowing which promotes drainage and hence can reduce the extent of post-stenotic lung damage.^[4-6] In our case the patient’s endobronchial obstruction significantly reduced after AKT and steroids for 6 weeks.

CONCLUSIONS

Endobronchial tuberculosis is a great mimic and prompt evaluation with bronchoscopy biopsy and culture help in clinching the diagnosis. Early treatment with appropriate AKT, with a possible role of steroids may help in reducing long-term complications such as bronchial stenosis and collapse.

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